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WHEN TRUST MAKES IT WORSE – RATING AGENCIES AS DISEMBEDDED SERVICE SYSTEMS IN THE U.S. FINANCIAL CRISIS

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Abstract

Rating agencies provide service by offering information about different kinds of securities and/or investment opportunities. This paper addresses questions often asked during the 2008 U.S. financial crisis: Why did no one see this coming? Why were all the explanations given afterward, not given before as precautions? Or if they were given before, why did nobody listen?

Using Giddens' idea of disembedded systems [Giddens A (1991a) *The Consequences of Modernity* (Polity Press, Cambridge, UK)], the paper describes and frames the phenomenon of U.S. financial crisis and the role of rating agencies in particular as a disembedded service system. Hereby it offers an explanation of the crises in contrast to the common incentive-oriented or moralizing perspectives. The paper shows that the U.S. financial crisis emerged from a disembedded service system, a simulacrum of ratings, which after a while was no more connected to the reality of securities. Information-providing service systems are in danger to become simulacra, and with it they can disembed. The paper offers a new insightful perspective on how to analyze and understand information-providing service systems and hence offers a perspective to avoid crises based on disembedded systems.

This is the first paper to our knowledge to analyze information-providing service systems based on Giddens' theory of abstract disembedded systems. It provides a new understanding of information-providing service systems that can help to avoid crises based on disembedded systems.

Keywords

trust; abstract systems; expert systems; symbolic token; U.S. financial crisis

1. Introduction

Financial services have become a key contributor to gross domestic product in modern economies (Berg and Einspruch 2010). However, with the rising complexity and diversity of these services, they have become increasingly difficult for investors and others to understand and evaluate. Thus, rating agencies have emerged quickly as a valuable service to evaluate securities support investors' decision making. Rating services play an important role not only in the financial markets but also, as country ratings, for governments and international investors. In addition, rating services are used widely in the academic environment to evaluate universities and academic journals. They are also used to market products other than financial services and products, such as car-safety ratings, medicine ratings, and ratings made by customers themselves. Ratings are ubiquitous.

Taking service-dominant logic and service science's definition of service as the "application of skills and knowledge for the benefit of another party" (Vargo and Lusch 2008, p. 6), ratings are a service. However, considering the importance of ratings in modern societies, it is surprising that they have not been addressed as a service either in the field of service-dominant logic or in service science. This article represents a step toward closing this gap. We analyze the role of rating agencies and their ratings in the 2008 U.S. financial crisis. We conceptualize ratings as a service and, specifically, financial ratings as a service for investors to support their decision making. We analyze these services from a systems perspective for two main reasons.

First, the 2008 U.S. financial crisis has been described as "a systemic breakdown" (Financial Crisis Inquiry Commission 2011, p. xxii). The Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States uses the word "system" 485 times (including 96 mentions of "financial system" and 84 mentions of "banking system"), though it makes no reference to system theory. The report neglects to define the term "system", not even as a glossary definition. Thus, it is used implicitly, which in itself provides enough reason to interpret it through a system theoretical lens and to investigate the 2008 U.S. financial crisis from a system theoretical perspective.

Second, a more fundamental reason to investigate ratings as service from a systems theory perspective is that ratings have become a medium of interchange in their own right, independent of what they rate and the people who are rating. Ratings refer to something, but they are understood without this reference, rendering them a "faceless" (Giddens 1991a) service; whereas, for example, a haircut is a "facework" (Giddens 1991a), service ratings are faceless. Giddens (1991a) uses this distinction to describe and analyze the "consequences of modernity." In modern times, just as pilots are not known by the airline passenger, services are performed by unknown, faceless experts.

Giddens (1991a) extensively analyzes these faceless activities and introduces the term "abstract system." Because lay actors cannot understand or prove the quality of these activities, they must trust the abstract system. Note that trust in this systems perspective sense is not based upon faith in good intentions or the "moral uprightness" of others but is instead based upon faith in the correctness of which one is ignorant (Giddens 1991a) because one is not an expert.

Rather than use a systems theoretical approach to explain the U.S. financial crises, common explanations highlight individuals' or organizations' moral or legal responsibility or focus on "wrong" incentives as being "responsible" for the crisis (Allen and Carletti 2010). In contrast, a systems theory perspective deemphasizes trust in moral or legal responsibility of individuals or organizations as a conglomeration of individuals and points to trust in abstract systems (Giddens 1991a, b). In his studies, Giddens distinguishes two types of abstract systems: expert

systems and symbolic tokens. Both systems are considered service providers in that they are created to do things for others. Ratings agencies as service providers can be understood as expert systems and the ratings themselves as symbolic tokens. To understand trust in expert systems and symbolic tokens, it helps to understand its conceptualization in modern and postmodern society. In particular, trust in individuals as commonly understood cannot encompass the challenges accompanied by abstract systems.

The current study uses a systems theory perspective (1) to describe the service of ratings in a systems theory terminology and (2) to explain it as reembedding a disembedded system in Giddens's sense. We argue that ratings provided by rating agencies for investors became a symbolic token (Giddens 1991a, b), which disconnected itself from the reality of securities. It emerged as a closed-loop communication between the rating agencies and the investors, no longer referring to the securities behind the investments. As a result, when investors made their claims, securities could not meet them: the investors' acquired rights could not be fulfilled, and the crisis became apparent.

We describe how the service rating became disembedded from reality to become a symbolic token. When such a system develops in congruence with reality, there is no danger; however, when it does not, danger is in sight. Metaphorically, if a man jumping on a helicopter from a moving train (e.g., as in a James Bond or Mission Impossible movie) wants to get back on the moving train, it is important that the helicopter flies at the same speed in the same direction that the train does. Otherwise, the man is in trouble. The helicopter is the abstract system that can develop (move) in congruence with the train (reality)—or not. The abstract system can disembed (disconnect the man from the train), it can drift away (fly away), or it can develop in congruence with the reality from which it disembedded. However, to reembed (to allow the man to get back on the train), it must develop in congruence with reality.

The rest of this paper is structured as follows: The next section describes ratings as a faceless service and connects it to a systems theoretical terminology of abstract systems. Section 3 describes abstract systems and explains how they operate as expert systems and symbolic tokens. Section 4 discusses trust in abstract systems. Section 5 describes investors, securities, rating agencies, and ratings in a systems theoretical terminology and derives explanatory hypotheses for the crises. Section 6 uses the Financial Commission Inquiry Report (FCIR), submitted by the Financial Crisis Inquiry Commission pursuant to Public Law 111-21, to further analyze the hypotheses. Section 7 concludes with a discussion and implications for further research.

2. Rating Service and Systems

According to service-dominant logic's definition of service, rating is a service in that it is the application of skills and knowledge for the benefit of another party (Vargo and Lusch 2004, 2008, 2011). However, after the rating has been completed, it can become an independent medium of interchange in the sense that it can be used without knowing the people behind the rating and without understanding the objects rated. In particular, financial ratings were developed because investors did not fully understand securities. In line with Giddens' (1991a) terminology, services that can be used without knowing the people who performed them are "faceless services." In a modern world, faceless services are ubiquitous, ranging from street repair to train driving, from software service to Internet service provider.

Differentiation and variety in the division of labor providing service has developed to such a degree that most people are lay actors in most fields. When lay actors cannot understand a specific service or prove its quality, ratings can be helpful. However, they must trust this rating;

as Giddens (1991a) and Luhmann (1995) point out, in these areas of faceless interaction, trust plays a crucial role to reduce uncertainty.

These kinds of faceless services cannot adequately be analyzed by identifying the individual customer or supplier. There is—by definition—not even a dyad of people such as suppliers or customers to be analyzed. Behind faceless services, there might be networks of people working together. Thus, these faceless services become systems of service and must be analyzed from a systems theory perspective.

A perspective must, on the one hand, be holistic enough to address face-to-face service and faceless service and trust as social phenomena and, on the other hand, be concrete or practical enough to describe the realities of postmodern societies. Although there is a wider body of literature on systems theory and cognate areas (e.g., Ashby 1956, Beer 1972, von Bertalanffy 1969, Boulding 1964, Checkland 1981, Giddens 1991a, Golinelli 2010, Hall and Fagen 1956, Luhmann 1995, Maturana and Varela 1992, Meadows 2008, Weinberg 2001, Wiener 1948/1961), it is largely very abstract and not (yet) directly connected to service, society, or trust. However, two important literature streams directly address these topics. The first is the viable system approach created by Stafford Beer (1972) and now applied to service. This approach originated in cybernetics and uses a management perspective to govern service systems (Barile and Polese 2010a, b; Polese and Di Nauta 2013). A second stream is that of social systems as conceptualized by Luhmann (1995) and Giddens (1991a, b). Both approaches distinguish face-to-face relationships from faceless relationships. Giddens (1991a) discusses “faceless commitments” as “abstract systems” (p. 80). These abstract systems offer an adequate frame for the purpose of analyzing ratings as faceless services, as conceptualized in the next section.

3. Abstract Systems

Societal systems can be divided into face-to-face systems and faceless commitments. Giddens (1991a) notes that “the former refers to trust relations which are sustained by or expressed in social connections established in circumstances of co-presence. The second concerns the development of faith in symbolic tokens or expert systems, which, taken together, I shall term *abstract systems*” (p. 80, emphasis in original).

Giddens (1991a) defines expert systems as “systems of technical accomplishment or professional expertise that organize large areas of the material and social environment in which we live today.” (p. 27). Modern life is full of expert systems. Most houses involve a network of expert systems: consumers rely on the heating system as well as the energy flow. When traveling, consumers rely on the airplanes as well as on the pilots’ ability to fly them. In addition, most people are part of expert systems; attorneys, architects, physicians, and rating agencies can be understood as expert systems in this sense. Because lay actors do not have the expertise of expert systems, they must trust them. This trust is not mainly in people but in the system; more precisely, “we can speak of trust in symbolic tokens or expert systems, but this rests upon faith in the correctness of principles of which one is ignorant, not upon faith in the ‘moral uprightness’ (good intentions) of others” (Giddens 1991a, pp. 33–34). Expert systems emerge according to the division of labor and specialized skills or knowledge. Thus, they are part of the service society. In short, rating agencies are expert systems serving investors by giving information on securities.

Using their expertise, rating agencies produce ratings intended to inform investors about securities, thus providing a service to support their decision making. In Giddens’s terminology, a rating can be understood as a symbolic token: “By symbolic tokens I mean media of

interchange which can be ‘passed around’ without regard to the specific characteristics of individuals or groups that handle them at any particular juncture” (Giddens 1991a, p. 22). Symbolic tokens are comparable to the character of currencies. They refer to something but do not need the referred object to be exchanged. Money is an example of a symbolic token; it is commonly understood what \$5 or E5 mean. In addition, it is commonly understood what it means when a child comes home from school with an A, and most people understand that AAA is a good securities rating. These entirely symbolic tokens provide service. But how do people know what these symbolic tokens are “saying”? How do they carry the right information, and how is it assured that this information is correctly understood?

4. Trust and Symbolic Tokens

Symbolic tokens are signs that carry meaning for those using them, which is the utility they provide. They thereby reduce the complexity of information into several simple signs (e.g., AAA, AAC). Because lay actors typically do not understand the complexity of information in question, they must trust the symbolic tokens. Ultimately, this trust is placed in the service provided by rating agencies. How is this trust rationalized from a systems theory perspective? For Giddens (1991a) and Luhmann (1995), trust in social systems is a mechanism to reduce complexity, not a moral issue. Thus, understanding trust in social systems theory is different from any moral inquiry. Luhmann (1995) explicitly connects trust to the symbolic: “This is why it [trust] depends on *symbolic cover*: it reacts to critical informations not because of the facts that they report, but because they function as indicators of trustworthiness” (p. 129, emphasis in original). This understanding of trust is not just a two-person relational affair but needs a third instance or entity of reference. “There is no way to trust in anyone in a system where one is not able to refer to an independent consensus” (Crozier 1963, cited by Luhmann 1995, p. 528, footnote 46), a consensus about an entity of reference not necessarily understood by people giving trust.

In such situations, trust enables people to use symbolic tokens as condensed information. For example, a teacher’s grading system only tells parents something if they trust in the teacher’s expertise and if they know what the system means. Thus, by means of signs or symbolic tokens, lay actors trust the expertise of others as well as the symbolic token’s meaning. In short, a symbolic token only works with trust. To shed light on how trust and symbolic tokens work together as service, it is reasonable to start with Bateson’s (1970) perspective on information. We explicitly exclude Shannon’s (1998) perspective here because it neither involves meaning nor refers to entities of reference. Shannon notes that “semantic aspects of communication are irrelevant to the engineering problem” (p. 31). Weaver (1998, p. 8) interprets this sentence as follows: “In fact, two messages, one of which is heavily loaded with meaning and the other of which is pure nonsense, can be exactly equivalent, from the present viewpoint, as regards information.” In contrast, Bateson (1970, p. 7) defines information as “the difference which makes a difference.” This definition supports our analysis. Any difference is based on a distinction, and any sign or token is a distinction insofar as it designates something and in doing so distinguishes it from the rest of the world. By naming something, we draw a distinction between it and the rest of the world. For example, if one calls something a “tree” or a “car,” one distinguishes the tree or the car from everything else that is not a tree or a car. This definition is an implication of Spencer-Brown’s (1969) calculus, which states that whenever one names something, the precondition of marking it by a name is a distinction. The drawing of the distinction and the marking of one side of the distinction is always done simultaneously. Calling something a “tree” or “car” not only names it but also distinguishes it from all other things that are not a tree or a car. Thus, naming something a “tree” or “car” makes a distinction

and, with that distinction, a first-tier difference. When people use a word to name something, the word becomes an important part of the service of communication and information.

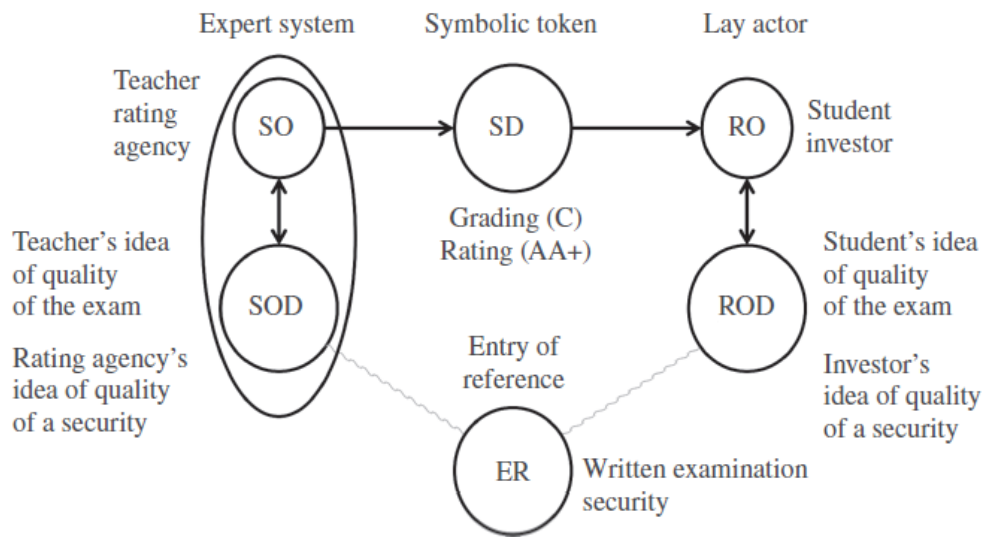
In summary, the first difference of Bateson's (1970) definition can be understood as the first-tier difference made by naming something. This difference must have a second-tier difference to have meaning. What kind of difference is the latter one? Consider the following introductory example. English-speaking Person A says to English-speaking person B, "Yesterday an ertong¹ came home." Person A makes a difference by distinguishing an "ertong" from the rest of the world. However, this difference does not necessarily make a (second-tier) difference for person B if person B has no idea what or who an "ertong" is. If, however, A says, "A child came home yesterday," person A makes a first-tier difference by distinguishing the child from the rest of the world, and this distinction makes another, second-tier difference for person B because now the word "child" refers to a human being, not just a word. For person B, the word "ertong" did not refer to a child, which could be distinguished from other entities in the world; therefore, it did not make a second-tier distinction. In short, using a word makes the first-tier distinction, and if the word refers to an entity that can be distinguished from the rest of the world (second-tier distinction), the word is understandable. The sentence "Yesterday an 'ertong' died" was just a message with no meaningful information, because the first-tier difference did not make a second-tier difference. A first-tier difference (sign or word) becomes service if it creates a second-tier difference: it is an application of skills and knowledge (using a word) that cocreates a benefit of another party (creating second-tier difference) and, with this, service.

In addition, a word—as a first-tier distinction—might differ in second-tier distinctions from person to person. A word such as "emotion" might have different meanings for different people. If these second-tier distinctions refer to an entity of reference (outside the person's mind—e.g., a tree, a car), people can use this entity of reference to find an appropriate use of the word in question. If there is no (external) entity of reference, people use other first-tier distinctions (words), which usually then refer to (external) entities of reference.

In a simple sender–receiver model, one can distinguish one first-tier difference, the word or sign used; two second-tier differences, one the sender has in mind and one the receiver has in mind; and an entity of reference to which both second-tier distinctions refer. Figure 1 presents the model graphically with the following definitions:

1. the difference the sign indicates in that it is a sign (not noise) (the sign difference (SD), the first-tier difference)
2. the difference a sign sending observer (SO) wants to indicate by using the sign (intended meaning; the sending observer's difference (SOD), a second-tier difference)
3. the difference a sign-receiving observer (RO) indicates by receiving the sign and (perceived meaning; the receiving observer's difference (ROD), a second-tier difference)
4. an entity of reference (ER) (if available) to which the differences refer

¹ *Ertong* ist the Chinese word for child.

Figure 1. Distinctions and Abstract Systems

Often, SOs are experts in their fields (e.g., physicians, attorneys, teachers). These groups of people are what Giddens (1991a) calls an expert system that provides service; they are people of specific expertise that lay actor typically do not have. However, not all expert systems create symbolic tokens. Physicians and attorneys, for example, have terminology but do not use these symbolic tokens to communicate to lay actors; they try to use lay actors' language to communicate to their clients. In contrast, teachers as expert systems use symbolic tokens—namely, the grading system (as described previously)—to communicate to lay actors. Both the expertise and the grading system provide service. Figure 1 provides an overview. It connects Bateson's (1970) idea of information to a well-known example (a teacher's grading system), and it connects the terminology to both forms of abstract systems: an expert system and symbolic tokens. A teacher (SO) grades a written examination (ER) of a student (RO) with a C (SD). The teacher's idea of the examination's quality is his or her difference as indicated by a C (SOD). The student's idea of his or her examination is his or her difference indicated by a C (ROD). The C is the difference the sign C indicates in this context; it is a sign and not noise (SD), the teacher's idea (SOD) of the written examination causing the grading, the student's idea of the received C (ROD), and finally, the written examination as the entity of reference (ER). There might also be other observers (OO) with their own differences, such as classmates and parents and other observers' differences (not shown in Figure 1).

The similar reasoning holds for the rating agencies: The rating itself is the first difference (e.g., AAA, AAC; SD). The rating agency (SO) uses the sign according to its idea of quality (SOD) of a security (ER) to support investors (RO). Reading the rating, investors have an idea of the quality of the security (ROD), on which they base their investment decisions. Table 1 summarizes the descriptions.

Table 1. Synopsis of Descriptions

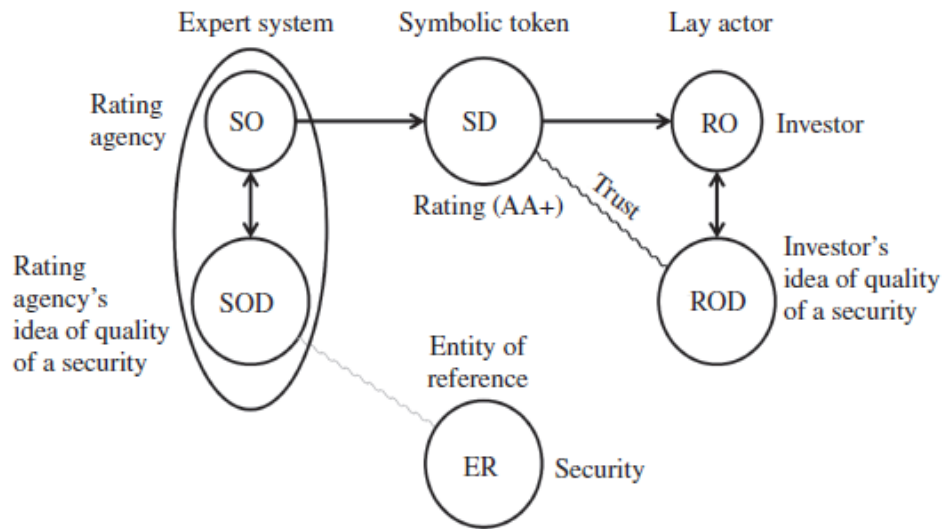
General description	Indicated by	Grading by teachers	Rating by rating agencies	Giddens's terminology
Difference a sign indicates (first-tier difference)	SD	C (A, B, C, D, E, F scale)	AAA (AA+, AA etc., scale)	<i>Symbolic token</i> if the signs used are independent from any reference
Sending observer	SO	Teacher	Rating agency	Expert as part of an <i>expert system</i>
Receiving observer	RO	Student	Investors	
Sending observer's difference (second-tier difference)	SOD	Teacher's idea of quality of the exam	Rating agency's idea of the quality of a security	Expertise as part of an <i>expert system</i>
Receiving observer's difference (second-tier difference)	ROD	Students' idea of quality of the exam	Investors' idea of the quality of a security	
Entity of reference	ER	Written examination	Security	
Other observers	OO	Parents, classmates, etc.	Financial authorities, homeowners, etc.	
Other observers' difference (other second-tier differences)	OOD	Parents', classmates' and other people's idea of the quality of the exam	Financial authorities, homeowners, and other people's idea of a security	

In cases in which an SO and an RO observe the same ER and understand this entity in the same way, communication is usually not a problem and might not even be necessary. However, in cases such as grading, in which symbolic tokens are created by expert systems, the ER may not be fully understood or fully accessible for the RO. Therefore, the SO (usually the expert) must explain the ER, typically by using his or her understanding of the ER (SOD). Note that the SO's understanding, his or her idea of this entity of reference (SOD), is not identical to the entity (ER). Furthermore, the SO has no access to the receiver's understanding (ROD), and the RO has no access to the SOD—only to the signs sent. If the RO has no access to the ER or does not understand it, he or she must trust the SO and his or her descriptions, somehow prove it, or exit or ignore the communication.

If the receiver has good reason to assume that the description of the entity of reference is accurate, trusting symbolic tokens presents no problems. However, if the receiver is a lay actor, he or she has neither access to the ER nor understanding of it; thus, the receiver cannot confirm the SO's description of the entity because there is no connection between the RO and the ER. This inability of proving a description is a first and necessary condition for cases in which trust can make it worse: as long as rating agencies provide an appropriate picture of securities by ratings, there will be no problem.

5. The 2008 U.S. Financial Crisis in Systems Theoretical Terminology

We now apply what was previously stated to the U.S. financial crisis as an example. Rating agencies are expected to give an appropriate picture of securities. A problem occurs if rating agencies do not provide an appropriate picture and investors do not notice this. If investors do not understand securities, they do not have an ER and must trust in the symbolic token—in this case, the rating. The situation described in Figure 1 changes to that in Figure 2; a closed loop between the rating, investor, and investor's interpretation now exists. Next, we describe the process of this change in terms of symbolic tokens as well as the financial system, and we derive four hypotheses.

Figure 2. Trust and Abstract Systems

The following process describes the change in four steps, which we use as our three hypotheses and one concluding hypothesis for a qualitative study:

Step 1. Investors are disconnected from the entity of reference. This leads to our first hypothesis.

Hypothesis 1 (H1). *Investors did not understand securities (no connection between the ROD and ER).*

Originally, the rating agencies were established to inform investors, to provide an appropriate picture about securities for investors' purposes.

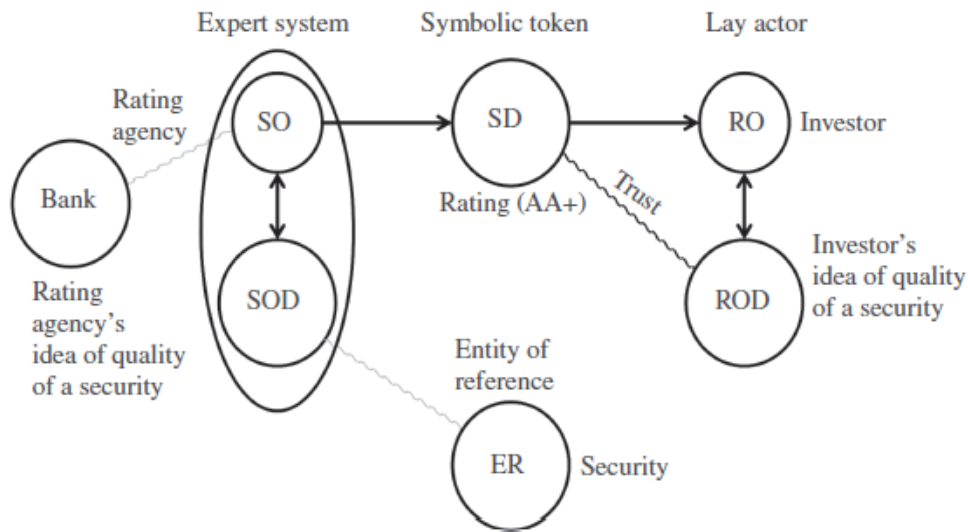
Step 2. Rating agencies and ratings were introduced as expert systems to create a symbolic token to support investors' decision making.

This leads to our second hypothesis.

Hypothesis 2 (H2). *Rating agencies were established to support uninformed investors (an information-providing system between investors (RO) and securities (ER)).*

During the time leading up to the 2008 crisis, the rating agencies began to use the ratings not only to inform investors but also to sell more securities. They were paid by banks to do so. Because the ratings themselves did not indicate this new function, investors were misguided. In essence, the expert system (rating agency) was not linked to investors but rather to banks selling securities. This connection forced the rating agencies to slowly change the rating's purpose from informing about securities to selling securities. Figure 3 depicts this conflict of interest by showing two REs, the securities and the banks.

Figure 3. Drifting of Abstract Systems



Step 3. Rating agencies changed their practice in giving ratings, and investors did not realize it. This observation leads to our third hypothesis.

Hypothesis 3 (H3). *Rating agencies stopped providing an appropriate picture of securities when a conflict of interest forced them to overvalue securities.*

At this point, the rating agencies had two options: (1) create ratings giving an appropriate picture of securities, which was in the interest of investors but not necessarily in the interest of those selling securities; or (2) increasingly use ratings to sell securities. However, if they had informed investors about this change, the rating information would have had no value to investors. Rating agencies decided to follow those who paid them. But those who paid were not necessarily interested in giving an appropriate picture about securities for investors.

Investors with no knowledge of evaluating securities had no other choice than to trust ratings. They had no opportunity of verifying ratings unless they bought and sold an investment. Their faith in the “correctness of principles” (Giddens 1991a) assumed that principles and procedures rating agencies used to construct a securities rating existed to help them.

In the same sense, physicians form an expert system, and the patient’s faith in the correctness of the principles the physicians uses is an important part of treatment: “The tokens and regimes of expertise of abstract systems circulate in a way that escapes the control of any of their practitioners and clients” (Stones 2005, p. 325). The patient, similar to the investor, can only prove the correctness by the results he or she produces together with the expert system: being healthy in the case of the patient and earning money in the case of the investor. In both cases, if a bad outcome occurs, the proof comes too late; the bad outcome is the proof. Therefore, they must trust or not use the expert system with its symbolic tokens. Therefore, we conclude the following.

Step 4 (Concluding Hypothesis). By the time investors realized that rating agencies had changed their practices and that the ratings did not carry the information they expected, it was too late.

When investors lodged their claims, they reconnected (reembedded) to the system as a whole and to the entity of reference in particular. At that point, they realized that the symbolic token in which they trusted had been misleading.

6. Data and Analysis

With the publication of the FCIR, a comprehensive description of the crisis became available. The commission described its own task as follows: “Our task was first to determine what happened and how it happened so that we could understand why it happened” (Financial Crisis Inquiry Commission 2011, p. xv). We use this report to analyze how the crisis was explained ex post. We acknowledge that this report is not necessarily an objective description; however, it is the most comprehensive document of the crisis. The report states that “the Financial Crisis Inquiry Commission was created to ‘examine the causes of the current financial and economic crisis in the United States.’ In this report, the Commission presents to the President, the Congress, and the American people the results of its examination and its conclusions as to the causes of the crisis” (Financial Crisis Inquiry Commission 2011, p. xi).

A central goal of the report is to uncover the causes of the financial crisis, which we analyze from a systems theoretical standpoint. We note that the descriptions made here can be deconstructed at any point. In this respect, our study also addresses distinctions the commission made based on other distinctions made earlier. It stands in the tradition of the poststructuralist body of thought (Baudrillard 1994, 2005; Deleuze 1992, 1994; Derrida 1978, 2004; Lyotard 1984).

Nevertheless, we find much evidence of both investors’ lack of understanding of the complexity and the disembedding of the ratings as symbolic tokens. In summary, the report highlights that investors had no real basis on which to evaluate securities and, worse, did not realize this disembedding and the changing purpose of the ratings.

We next provide evidential support of our hypotheses. We use excerpts from the FCIR (Financial Crisis Inquiry Commission 2011) to illustrate; emphasis is our own.

6.1. Support for Hypothesis 1

In support of H1, we found that 45 passages in the text (sentences or sections) refer to “understanding” or “not understanding”; six refer to the understanding of the crisis as a whole. For example, “Our task was first to determine what happened and how it happened *so that we could understand why it happened*” (p. xv).

Some examples of the other 39 passages follow:

- “The captains of finance and the public stewards of our financial system ignored warnings and *failed to question, understand, and manage* evolving risks within a system essential to the well-being of the American public” (p. xvii).
- “There was no comprehensive and strategic plan for containment, because they *lacked a full understanding* of the risks and interconnections in the financial markets” (p. xxi).
- “Senior executives—particularly at three of the leading promoters of CDOs [collateralized debt obligations], Citigroup, Merrill Lynch, and UBS—*apparently did not accept or perhaps even understand* the risks inherent in the products they were creating” (p. 188).
- On the organizational level, “ ‘the firm *did not have an adequate, firm-wide consolidated understanding* of its risk factor sensitivities,’ the supervisors wrote in an internal November 19 memo describing meetings with Citigroup management” (p. 303), and “major firms and investors *blindly relied on credit rating agencies* as their arbiters of risk” (p. xvii).

In summary, we conclude that the report supports H1.

6.2. Support for Hypothesis 2

Here, we provide an example of a passage that supports H2: When Lewis Ranieri was interviewed by the commission, he reported that when he presented the concept of non-agency securitization to policy makers they asked him, “ ‘*This stuff is so complicated how is anybody going to know? How are the buyers going to buy?*’ ” Ranieri answered, “ ‘*One of the solutions was, it had to have a rating. And that put the rating services in the business*’ ” (p. 68). In systems theoretical language, the rating is a differentiation indicating ‘good’ and bad” securities. It goes without saying that rating agencies exist; it is more notable how the rating agencies disconnected investors and securities. More precisely, the rating agencies and their ratings were positioned between securities and investors: “This complexity transformed the three leading credit rating agencies—Moody’s, Standard & Poor’s (S&P), and Fitch—into key players in the process, *positioned between the issuers and the investors of securities*” (p. 43).

In this sense, the disconnection between investors and securities (originally apparent because investors did not fully understand securities) now manifested in the rating agencies and their ratings. In other words, most investors needed simpler and independent information. In the FCIR, Jim Callahan, chief executive officer of PentAlpha, a firm that services the securitization industry, is quoted as saying, “ ‘*The rating agencies were important tools to do that because you know the people that we were selling these bonds to had never really had any history in the mortgage business. [. . .] They were looking for an independent party to develop an opinion.*’ ” (p. 44). The report also notes that Callahan had “years ago . . . worked on some of the earliest securitizations” (p. 44).

Agencies (expert systems) used mathematical models (symbolic tokens) to ensure these independent ratings: “Financial institutions and credit rating agencies embraced mathematical models as reliable predictors of risks, replacing judgment in too many instances. Too often, risk management became risk justification” (p. xix). Expert judgments were essentially substituted by mathematical models, with no access points even for experts; even the expert system disconnected from the symbolic token.

Furthermore, many passages refer to a lack of transparency. One such example is as follows: “*Lack of transparency contributed greatly to the crisis: the exposures of financial institutions to risky mortgage assets and other potential losses were unknown to market participants, and indeed many firms did not know their own exposures*” (p. 386).

Rating systems were established, among other reasons, to bridge the world of overwhelming variety of securities and uninformed investors. Thereby rating agencies were positioned between the issuers and investors of securities. Therefore, we conclude that the report supports H2.

6.3. Support for Hypothesis 3

Usually, lay actors trust expert systems if there are no conflicting interests—or, more precisely, if they are not aware of conflicting interests in the expert system. Investors understood rating agencies as independent parties, as exemplified by the quote from Jim Callahan cited in §6.2. He stated that lay investors “were looking for an independent party to develop an opinion” (p. 44); these “opinions” were condensed into the well-known letter ratings (“AAA” for S&P and Fitch and “Aaa” for Moody’s).

However, rating agencies were operating in an environment of increasing conflicts of interests. We note the first hint of divergent interests in the following statement made by the commission in the report: “You will also read about the forces at work behind the breakdowns at Moody’s, *including the flawed computer models, the pressure from financial firms that paid*

for the ratings, the relentless drive for market share, the lack of resources to do the job despite record profits, and the absence of meaningful public oversight” (p. xxv). Financial firms pressured the rating agencies, and investors were unaware. A more direct hint of conflict of interests is evidenced by the following statement: “Put simply and most pertinently, structured finance was the mechanism by which subprime and other mortgages were turned into complex investments often accorded triple-A ratings by credit rating agencies whose own motives were conflicted” (p. 28). And, even worse, “participants in the securitization industry realized that they needed to secure favorable credit ratings in order to sell structured products to investors. Investment banks therefore paid handsome fees to the rating agencies to obtain the desired ratings” (p. 44).

In addition, new rules in the rating business strengthened the disconnection between rating agencies and a fair evaluation of securities. One such rule, the Recourse Rule, was introduced in 2001 to govern how much capital a bank needed to hold against securitized assets. As noted in the FCIR, “The Recourse Rule also imposed a new framework for asset-backed securities. The capital requirement would be directly linked to the rating agencies’ assessment of the tranches. Holding securities rated AAA or AA required far less capital than holding lower-rated investments. For example, \$100 invested in AAA or AA mortgage-backed securities required holding only \$1060 in capital (the same as for securities backed by government-sponsored enterprises). But the same amount invested in anything with a BB rating required \$16 in capital, or 10 times more. . . . *The new requirements put the rating agencies in the driver’s seat.* How much capital a bank held depended in part on the ratings of the securities it held” (p. 100). However, nobody expected AAA-rated securities to fail: “Meanwhile, banks and regulators were not prepared for significant losses on triple-A mortgage-backed securities, which were, after all, supposed to be among the safest investments. *Nor were they prepared for ratings downgrades* due to expected losses, which would require banks to post more capital” (p. 100). This passage indicates that AAA-rated securities were expected to be the safest investments.

There ratings were not questioned, though they were disconnected from the quality of securities; investors still trusted the symbolic token AAA. Only a few people recognized this process of change of the “rules”; one of them was Herb Sandler, who, as “co-founder of the mortgage lender Golden West Financial Corporation, which was heavily loaded with option ARM [adjustable-rate mortgage] loans, wrote a letter to officials at the Federal Reserve, the FDIC [Federal Deposit Insurance Company], the OTS [Office of Thrift Supervision], and the OCC [Office of the Comptroller of the Currency] warning that regulators were ‘too dependent’ on ratings agencies and ‘there is a high potential for gaming *when virtually any asset can be churned through securitization and transformed into a AAA-rated asset*, and when a multi-billion dollar industry is all too eager to facilitate this alchemy’ ” (p. 20). The logic was turned upside down: capital endowments, which were originally indicated by ratings, were based on those ratings: “Tying capital standards to the views of rating agencies would come in for criticism after the crisis began. It was ‘a dangerous crutch,’ former Treasury Secretary Henry Paulson testified to the Commission” (p. 100). Investors did not recognize this: “While investors in the lower-rated tranches received higher interest rates because they knew there was a risk of loss, *investors in the triple-A tranches did not expect payments from the mortgages to stop.* This expectation of safety was important, so the firms structuring securities focused on achieving high ratings. In the structure of this Citigroup deal, which was typical, \$737 million, or 78%, *was rated triple-A*” (p. 72). These passages indicate that the rating was not connected to a solid evaluation of investments. However, regulators realized this danger too late, and the crisis came on quickly, as our Concluding Hypothesis implies.

7. Discussion

The approach presented here conceptualizes ratings as a service and, in particular, trust in this type of service. Modern societies have developed to a degree of labor division such that many services are faceless and can be used without knowing the people who performed them. Social systems theory (Giddens 1991a, Luhmann 1995) has focused on trust in this kind of service and point out that trust is “not upon faith in the ‘moral uprightness’ (good intentions) of others” (Giddens 1991a, p. 34); trust in faceless service “rests upon faith in the correctness of which one is ignorant” (Giddens 1991a, pp. 33–34) because one is not an expert. The current study discusses securities ratings as a faceless service within Giddens’s systemic frame. In this frame, rating agencies can be understood as expert systems and their ratings as symbolic tokens. In addition, investors perceived the ratings as a trustable service they could use for decision making.

Symbolic tokens are in danger of disembedding from reality; that is, first, the information they carry disconnects from the object, and second, the symbolic token drifts away from the information it was originally intended to carry. The ratings were originally intended to carry trustworthy information about securities; however, they were used increasingly to sell these securities. The information they carried drifted away from the original intention and thus became untrustworthy. From the investors’ perspective, this drifting was not noticeable because they were not expert enough to prove the ratings and still believed that the ratings were made without any conflict of interest. Thus, the investors did not know that the ratings misinformed them.

Furthermore, the investors were unaware that they did not know. The situation in which a person is unaware that he or she does not know is experienced as knowing. For example, if a student gives an answer to a question in a written examination, she must believe that this answer is right; otherwise, she would not have written it down. The teacher, however, knows that the answer is wrong. Thus, the student knows neither the answer nor that she does not know the answer; thus, she believes that she knows and remains believing so until the teacher tells her that the answer is wrong. Investors were in a similar situation: they believed they knew because they did not know that they did not know.

In modern societies, information is an important service, and using this faceless service implies trust in it. When lay actors use this service, they may not be aware of the drift in its accuracy. The more differentiated a society is, the more expert systems and symbolic tokens as faceless services are established; consequently, people simply cannot be aware of the entities of reference because there is too much knowledge in the world for a single person. Researchers have extensively discussed the danger of disconnection of symbolic tokens in the postmodern (Lyotard 1984) and poststructuralist (Baudrillard 1994, 2005; Derrida 1978, 2004) literature streams. It also has been discussed in finance (Macintosh et al. 2000) and jurisprudence (Rüthers 2005). This study is the first application to our knowledge of these thoughts to financial services and to ratings agencies in particular. It shows how important it is to understand that the information signs might carry is merely one of several distinctions (Bateson 1970, Spencer-Brown 1969). It is also important to understand abstract systems as a consequence of modernity (Giddens 1991a), particularly if a service is based on expert systems or symbolic tokens. Our analysis of the financial crisis report indicates that crises in service systems are not based purely on individuals’ moral or legal responsibilities and people’s trust in them. Trust as conceptualized in abstract systems is not an issue of morality or legitimacy but rather a question of enabling cooperation between different social systems, which often results in expert systems or symbolic tokens on the one hand and lay actors on the other. This kind of trust is based on the connection to an entity of reference. If this connection is lost, trust can make it worse.

8. Implications and Further Research

This conclusion has far-reaching implications. Recall the Internet crisis connected to the dot-com bubble at the turn of the millennium. Was this perhaps a consequence of faceless informational services provided but not fully understood? Was it a situation in which many investors thought they knew but did not know that they did not know? They may have thought that they knew because it may have seemed that everyone was investing in the Internet. If many people followed this reasoning, investors might have believed that it was sound. However, they eventually discovered that they did not really know what they were doing. Thus, after they failed, they realized that they did not know.

Some forces in modern societies (e.g., WikiLeaks) propose that all people should have access to all information. In contrast, others claim that people who have no expertise about the concerns this information describes cannot understand or correctly evaluate it. Therefore, they maintain that a main service function of journalism is to screen, evaluate, and explain this information to society. Thus, service scientists could fruitfully study informational services not only from a journalistic or stakeholder perspective but also from a systems perspective.

In addition, social media are a powerful force in today's society. For example, recent research has discussed social media as channels for marketing (Mangold and Faulds 2009) and social networks (Kwak et al. 2010). However, social networks are not necessarily service networks. Löbner (2013) proposes the idea of service-dominant networks. Together with the idea of abstract systems, these ideas present new opportunities to investigate social media as faceless services and to investigate their trustworthiness in particular. It is important for further research to distinguish trust between individuals and trust in abstract systems (Giddens 1991a, p. 83). Valenzuela et al. (2009) show that social trust as faith in people is positively related to the intensity of Facebook use among young adults. However, what is the cause and what is the effect are not clear. What about trust in Facebook and other social media as abstract systems? Is trust in Facebook (or in those using Facebook) a similar danger for young people as it was for investors when trusting rating agencies?

In the academic world, journal rankings, university ratings, and other types of evaluations are pervasive. Are these ratings becoming symbolic tokens and thereby an independent media of interchange? If so, are they still connected to the intended idea of independent high-quality evaluations of research? Or do they become an independent system of their own, drifting away from high-quality research to perhaps focus on mainstream research? Are university rankings still really reflecting the originally intended information about these complex entities? Or do university rankings become self-fulfilling prophecies having their own unintended momentum? Do these informational services create value for all or only for some? If they create value for some, do they harm others? Academic ratings, rankings, and evaluation constitute services; however, they remain underrepresented, or not represented at all, in service science and service research.

These ratings and evaluation in academia have another characteristic not yet discussed: they are service on service. For example, teaching is a service. The evaluation of teaching is a service on another service. In line with second-order cybernetics (von Foerster 2003), we propose to call services such as teaching and cutting hair first-order services and ratings, rankings, evaluations, or information of these services second-order services (a service applied on a service). Service-dominant logic defines service as the "application of resources for the benefit of another party Broadly, resources are of two types: operand, those that require some action to be performed on them to have value (e.g., natural resources) and operant, those that can be used to act (e.g., human skills and knowledge)" (Vargo and Lusch 2011, p. 184). Thus, service is when operant resources work on or with operand resources for the benefit of

another party—first-order service as we conceptualize it. Second-order service is when operant resources work on or with (first-order) services for the benefit of another party. Thinking in terms of second-order services opens the door to analyzing them as self-referential service of service, or a second-order phenomenon. Both ideas have a tradition in systems thinking (see, e.g., von Foerster 2003 for second-order phenomena and Luhmann 1995 or Maturana and Varela 1992 for self-referentiality). In this sense, service science is also a second-order service; it provides, among other things, information about service.

The service literature has not addressed second-order services. Second-order services would be ideal candidates for symbolic tokens and thereby candidates for disembedding systems. Which of these second-order services are in danger of drifting away from reality, and how can the process of disembedding be contained? Can second-order service be designed in such a way to support people's understanding? Or would that make it even worse? The aforementioned is only a fraction of the questions that emerge when using a systems perspective. Many more areas of fruitful research might exist.

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